



# UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE  
United States Patent and Trademark Office  
Address: COMMISSIONER FOR PATENTS  
P.O. Box 1450  
Alexandria, Virginia 22313-1450  
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/694,986	10/29/2003	Masaharu Nagai	12732-171001	5334

26171 7590 10/04/2005

FISH & RICHARDSON P.C.  
P.O. BOX 1022  
MINNEAPOLIS, MN 55440-1022

EXAMINER
----------

CHACKO DAVIS, DABORAH

ART UNIT	PAPER NUMBER
----------	--------------

1756

DATE MAILED: 10/04/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary**

Application No.

10/694,986

Applicant(s)

NAGAI ET AL.

Examiner

Daborah Chacko-Davis

Art Unit

1756

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 29 October 2003.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-16 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-16 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some \* c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date 10/03, 08/04.
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_\_.

## DETAILED ACTION

### *Claim Rejections - 35 USC § 102*

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

2. Claims 1-16, are rejected under 35 U.S.C. 102(e) as being anticipated by U. S. Patent Application Publication No. 2003/0228740 (Nagai et al).

Nagai, in [0002], [0024], [0025], [0026], [0035], [0063], [0099], [0100], discloses a method of removing a resist pattern comprising forming a resist pattern of a positive resist, wherein the positive resist includes a diazonaphthoquinone photosensitizer (DNQ photosensitizer), developing the exposed resist, irradiating the resist pattern with light within a range of the photosensitive wavelengths of the DNQ photosensitizer, performing a dry etch process (on the material to be processed, film formed over the surface of the silicon substrate) using the resist pattern as the mask, and removing the resist pattern by a removing process (resist stripper) to form a semiconductor device (claims 1-4). Nagai, in [0021], and [0025], discloses that the resist patterns include a DNQ-novolac resin type of positive resist, wherein DNQ is the photosensitizer (claims 5-8). Nagai, in [0099], [0100], [0103], [0104], discloses that the resist pattern is used as a mask to etch the gate electrode beneath the photoresist mask (claims 9-11). Nagai, in

[0100], [0101], [0102], [0103], [0104], [0105], [0106], and [0118], discloses a method of manufacturing a semiconductor device comprising forming semiconducting layers over the substrate, depositing a gate insulating film over the semiconducting layer, forming a first gate electrode film so as to overlie the gate insulating film, depositing a second gate electrode film over the first gate electrode film (laminated metal layer, forming resist patterns over the gate electrode film (second), and irradiating the resist patterns performing a first dry etching process to form the second-layer electrode (second gate electrode), performing a second dry etching process in order to form the first-layer electrodes (first gate electrode), performing a third dry etching step in order to etch the first and second-layer gate electrodes, removing the remaining resist pattern (by ashing and stripping), wherein the first gate electrode and the second gate electrode possess a tapered side wall portion (tapered shape), and the first gate electrodes (reference 512c of figure 7B) extend beyond the second gate electrodes (reference 512b of figure 7B) after the third dry etch process (claims 12, and 13). Nagai, in [0117], [0118], discloses that the laminated metal film is formed on an acrylic resin film, wherein the laminated metal layers include titanium/aluminum/titanium (claims 14, and 15). Nagai, [0017], and in Table 1, discloses that the resist pattern is exposed to light for about 20 seconds (claim 16).

### ***Conclusion***

3. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Daborah Chacko-Davis whose telephone number is (571) 272-1380. The examiner can normally be reached on M-F 9:30 - 6:00. If

Art Unit: 1756


attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Mark F Huff can be reached on (571) 272-1385. The fax phone number for the organization where this application or proceeding is assigned is (571) 273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

dcd



September 26, 2005.



**JOHN A. MCPHERSON**  
**PRIMARY EXAMINER**